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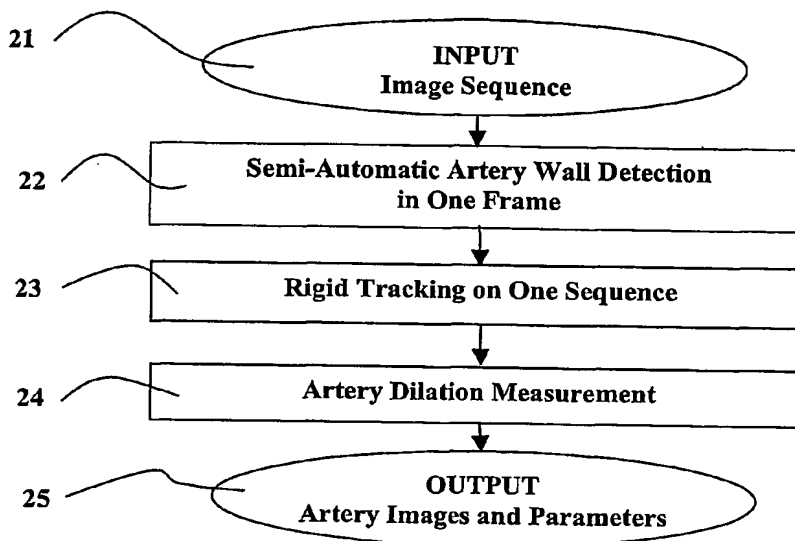
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- Declaration under Rule 4.17:  
— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,

[Continued on next page]

(54) Title: ULTRASONIC APPARATUS FOR ESTIMATING ARTERY PARAMETERS



(57) Abstract: The invention relates to an ultrasonic image processing system, for processing images in an image sequence representing a segment of artery explored along its longitudinal axis, said artery segment showing moving walls; this system comprising: acquisition means (21) for acquiring an ultrasonic image sequence of a segment of artery explored along its longitudinal axis and having walls moving in relation with the cardiac cycle; semi-automatic detection means (22) for detecting the artery walls in an image of the sequence; automatic rigid tracking means (23) for tracking the corresponding artery walls in other images of the sequence; evaluation means (24) for evaluating the artery wall motion and distensibility; and viewing means (154) for visualizing images. The invention further relates to an ultrasound examination apparatus having a curved array of transducer elements and coupled to this system, having viewing means to visualize the images.



CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

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# INTERNATIONAL SEARCH REPORT

International Classification No  
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## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61B8/08

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EP0-Internal, PAJ, INSPEC, BIOSIS

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WILSON KA, HOSKINS PR, LEE AJ, FOWKES FGR, RUCKLEY CV, BRADBURY AW: "Ultrasonic measurement of abdominal aortic aneurysm wall compliance: reproducibility study" JOURNAL OF VASCULAR SURGERY, ISSN: 0741-5214, vol. 31, no. 3, March 2000 (2000-03), pages 507-513, XP008029450 page 507 -page 509	1,11,12, 14
Y	---	2-10
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Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

### \* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	FALCAO A X ET AL: "User-Steered Image Segmentation Paradigms: Live Wire and Live Lane" CVGIP GRAPHICAL MODELS AND IMAGE PROCESSING, ACADEMIC PRESS, DULUTH, MA, US, vol. 60, no. 4, July 1998 (1998-07), pages 233-260, XP004418891 ISSN: 1077-3169 page 237 -page 249	2-6
Y	LEVIENAISE-OBADIA B, GEE A: "Adaptive segmentation of ultrasound images" IMAGE AND VISION COMPUTING, ISSN: 0262-8856, vol. 17, no. 8, June 1999 (1999-06), pages 583-588, XP002276370 Elsevier, Netherlands * whole document *	2-8
Y	US 2001/039382 A1 (BONNEFOUS ODILE) 8 November 2001 (2001-11-08) figure 3	9,10
A	PATENT ABSTRACTS OF JAPAN vol. 2002, no. 12, 12 December 2002 (2002-12-12) & JP 2002 238903 A (GE MEDICAL SYSTEMS GLOBAL TECHNOLOGY CO LLC), 27 August 2002 (2002-08-27) abstract	1-7,11, 14

# INTERNATIONAL SEARCH REPORT

International Application No.  
PCT/IB 03/05914

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 13  
because they relate to subject matter not required to be searched by this Authority, namely:  
Rule 39.1(iv) PCT - Diagnostic method practised on the human or animal body
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

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PCT/IB 03/05914

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2001039382 A1	08-11-2001	WO 0146713 A1 EP 1157285 A1 JP 2003517912 T	28-06-2001 28-11-2001 03-06-2003
JP 2002238903 A	27-08-2002	NONE	